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Description

BACKGROUND OF THE INVENTION

1. Field of the Invention.

This invention relates to trash compactors and more particularly to trash compactors having a two stage compacting process with a single ram for compacting in both stages.

2. Description of the Prior Art.

Collecting and transporting trash from urban communities has become a major industry throughout the civilized world. Because trash must be transported from urban areas to areas where it can be left in landfills or otherwise disposed of, an important function in transporting trash is to first compact it so as to reduce the volume required to transport a given weight of waste material.

Trash compactors have been utilized in homes and apartment buildings to compact trash. They have also been utilized on trucks which collect trash in urban areas to increase the payload of the trucks as the trucks collect the material from households and commercial establishments. Trash compactors have also been utilized in trash transfer stations where trash is brought by vehicles that collect it in urban areas and reprocessed and placed on larger vehicles for long haul transshipment to remote landfills or other disposal locations.

The trash compactor of the present invention contemplates an efficient two stage compacting device in which a single ram compresses and compacts trash material in both stages of compaction.

Trash compactors on refuse trucks are well known. U.S. Patent No. 3,355,044, U.S. Patent No. 3,454,174, U.S. Patent No. 4,016,988, and U.S. Patent No. 4,113,125 are all examples of trash compactors mounted on refuse trucks.

Trash compactors for use in homes and apartment buildings are also well known. Examples of these compactors are shown in U.S. Patent No. 3,638,561 and U.S. Patent No. 4,757,758. Multi-stage trash compactors are also known as is evidenced by U.S. Patent No. 3,908,538.

The multistage compactor of the present invention is particularly well suited for compacting bottles and cans, particularly plastic bottles which, when they have a cap on them, are difficult to crush or break, and the two stage process of the present invention permits bottles and cans to be precompact before they are compacted a second time. U.S. Patent No. 4,213,384 recognizes the difficulty of compacting bottles and cans and attempts to solve this problem with a mechanism

quite different than that of the present invention.

The multistage compactor of the present invention is also useful in precompacting bulky items, such as cardboard cartons, before they are moved into the storage area of the present invention for a second stage of compaction.

French Patent application FR-A-2 562 517 describes a compactor wherein a compaction ram has a first compacting face which enters a main compartment, while a second compaction face executes a shorter reciprocal movement to compress material lying on the open top of the main compaction ram.

In accordance with the present invention, there is provided a trash compactor comprising a precompacting chamber, a main chamber and a ram, the ram being movable between an extended position, a retracted position, and a central position, and the ram having a first portion partially defining the precompacting chamber, a second portion partially defining the main chamber, and a third portion arranged to selectively prevent communication between the precompacting chamber and the main chamber, the arrangement being such that in the extended position of the ram, the precompacting and main chambers have minimum volume and the third portion of the ram serves to prevent communication between the precompacting chamber and the main chamber, in the retracted position of the ram the precompacting and main chambers have maximum volume and communication between the precompacting chamber and the main chamber is permitted, and in the central position the precompacting and main chambers have an intermediate volume and communication between the precompacting chamber and the main chamber is denied, characterised in that the precompacting chamber has an entry door, and in that access to the precompacting chamber from the outside is only permitted when communication between the precompacting chamber and the main chamber is prevented.

Accordingly, a principal object of the present invention is to provide an efficient two stage trash compactor having a single ram for compacting in both stages.

Another preferred object of the present invention is to provide a trash compactor which is well suited to crushing and breaking bottles and cans that are segregated from other trash under environmental requirements and placed for collection.

Another preferred object of the present invention is to provide trash compactors of the two stage type which may be utilized on a refuse vehicle, at fixed locations or in a transfer station.

An additional preferred object of the present invention is to provide trash compactors that have safety features to prevent injury of those working

with them.

These and other preferred objects of the present invention will become apparent as this description proceeds in conjunction with the accompanying drawings and the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of a truck with one embodiment of the trash compactor of the present invention mounted thereon.

Figure 2 is an elevation in partial section of the compactor of Figure 1.

Figure 3 is an elevation similar to Figure 2 showing the ram of the compactor in a different position.

Figure 4 is an end elevation in partial section taken along line 4-4 of Figure 2.

Figure 5 is an elevation similar to Figures 2 and 3 showing the ram of the compactor in a third position.

Figure 6 is a perspective view of a second embodiment of the trash compactor of the present invention.

Figure 7 is a front elevation in partial section of the compactor of Figure 6.

Figure 8 is an elevation similar to Figure 7 with the ram in another position.

Figure 9 is an elevation similar to Figures 7 and 8 with the ram in a third position.

Figure 10 is an end elevation in partial section taken along line 10-10 of Figure 7.

Figure 11 is a perspective view of a third embodiment of the trash compactor of the present invention.

Figure 12 is an elevation in partial section of the compactor of Figure 11.

Figure 13 is an elevation similar to Figure 12 showing the ram in another position.

Figure 14 is an elevation similar to Figures 11 and 12 showing the ram in still another position.

Figure 15 is an elevation in partial section of a fourth embodiment of the trash compactor of the present invention.

Figure 16 is an elevation similar to Figure 15 with the ram in another position.

Figure 17 is an elevation similar to Figures 15 and 16 with the ram in another position.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings, and particularly to Figures 1 through 5, there is shown a trash compactor indicated generally at 10. In Figure 1 the trash compactor is shown mounted on a truck 12. The configuration of the compactor 10 shown in Figures 1-5 is particularly adapted for the compact-

ing of bottles, plastic bottles and cans which have been segregated by a homemaker in accordance with environmental requirements that are prevalent in many communities. These bottles and cans are segregated from the general trash and garbage within the urban communities although they may all be transported in the same truck. As shown in Figure 1, the trash compactor 10 is mounted adjacent to the cab of the truck and receives the bottles and cans. Rearwardly on the truck the general trash and garbage is placed within the truck body (not shown).

The trash compactor 10 has a body 14 with a main compacting and storage chamber 15 comprising a lower portion of the body 14. A ram 16 is positioned for reciprocating motion within the compactor body 14. The lower portion of the body 14 has doors 18 for emptying the compacted material when the truck arrives at its destination.

The ram 16 is reciprocated by a hydraulic cylinder 20 fixed to the compactor body 14 and a piston 22 fixed to the ram 16. The cylinder 20 and piston 22 are of conventional design and arrangement and are double acting. Conventional controls (not shown) actuate the cylinder 20 and piston 22 at the command of the operator. The ram 16 has a first portion 24 that extends into the main compacting and storage chamber 15. The ram 16 has second portions 26 that extend outwardly from the main body of ram 16 and into auxiliary precompacting chambers 27 of the compactor body 14. The ram 26 has third portions 28 which substantially block the passage from auxiliary precompacting chambers 27 to the main compacting and storage chamber 15 when the ram is positioned as shown in Figure 1.

Each auxiliary precompacting chamber 27 has a liner 30 that has a bottom wall 32 and upwardly extending sidewalls 33. Each liner 30 is pivoted on a horizontal pivot pin 34. Each liner 30 has a horizontally extending actuating bar 36 which is contacted by ram second portions 26 to pivot the liners 30 about pivot pin 34 as will be described.

Each auxiliary precompacting chamber 27 has a door 38 which is hinged horizontally at its top on hinge 40. A door actuating arm 42 is pivotally connected to the door 38 below hinge 40 and is contacted by ram second portion 26 to open and close the doors 38. A flexible web 44 is connected to the bottom wall 32 of each liner 30 and is also connected to the bottom wall 46 of each auxiliary precompacting chamber 27 in order to prevent material from entering between the bottom walls 32 of the liners 30 and the bottom walls 46 of auxiliary precompacting chambers 27 when liners 30 are pivoted upwardly away from the respective bottom walls 46 of auxiliary compacting chambers 27.

In the operation of the trash compactor 10 shown in Figures 1-5, the neutral position of ram 16 is shown in Figure 2 with the liners 30 within auxiliary precompacting chambers 27 in a lowered position and the ram second portions 26 raised above the bottom walls of liners 32. In this position the ram third portions 28 substantially block movement of material from within the auxiliary precompacting chambers 27 to the main compacting and storage chamber 15. In the position shown in Figure 2, the doors 38 are held open by the position of ram second portions 26 contacting the door actuating arms 42. Material, such as bottles, plastic bottles and cans, is put into the auxiliary precompacting chambers 27 within liners 30.

The ram 16 is then lowered under the force of the hydraulic cylinder 20 and piston 22 to the position shown in Figure 3 at which time the material within the auxiliary precompacting chambers 27 is precompacted by the second portions 26 of ram 16. In the position shown in Figure 3, the first portion 24 of ram 16 enters the main compacting and storage chamber 15 thereby compacting for a second time material within that chamber 15 when the main compacting and storage chamber 15 becomes sufficiently filled with precompacted material. It will be noted that the doors 38 are closed while the ram 16 is in the position shown in Figure 3 which prevents accidental entry of an operator's hand into the precompacting chambers 27 during the compacting stroke of the ram 16.

After the compacting stroke shown in Figure 3, the ram 16 is retracted to the position shown in Figure 5. In the Figure 5 position, the ram 16 is withdrawn completely from the main compacting and storage chamber 15 and the ram second portions 26 contact the actuating bars 36 on liners 30 thereby pivoting liners 30 about pivot pins 34 to dump the material out of liners 30 and into the main compacting and storage chamber 15. The flexible webs 44 are extended in Figure 5 to prevent any material from entering between the bottom wall 32 of each liner 30 and the bottom walls 46 of the respective auxiliary precompacting chambers 27. If material entered between the bottom walls of 32 of liners 30 and bottom walls 46 of precompacting chambers 27, it might prevent proper reseating of the liners 30 which is required for the compacting stroke shown in Figure 3.

It will be seen that since the ram 16 is a unitary structure and moves vertically in a reciprocating motion that the precompacting of material within auxiliary precompacting chambers 27 occurs simultaneously with the compacting of material within the main compacting and storage chamber 15.

Referring now to Figures 6 through 10, there is shown a second embodiment of the present invention which is a trash compactor indicated generally

at 50 for compacting trash within a removable receptacle 52. The receptacle 52 is designed to be situated in a stationary location, such as behind a commercial establishment, and to be hauled away by a specially equipped truck and replaced by an empty receptacle when full.

In the embodiment of Figures 7-10, the removable receptacle 52 is the main compacting and storage chamber of trash compactor 50. The auxiliary precompacting chamber 53 is a semi-permanent structure positioned above receptacle 52 upon a base 54 which receives the removable receptacle 52. The ram 56 is actuated by a hydraulic cylinder 60 and piston 62 to reciprocate vertically relative to the trash compactor base 54. The ram 56 has a first portion 64 which enters into receptacle 52 to contact material within the main compacting and storage chamber formed by receptacle 52. Ram 56 has a second portion 66 which compacts material within the auxiliary precompacting chamber 53 and a third portion 68 which substantially blocks movement of material from auxiliary precompacting chamber 53 into receptacle 52 when the ram 56 is in the position shown in Figure 7.

As was described in connection with the embodiment of Figures 1-5, an auxiliary precompacting chamber 53 has a liner 70 with a bottom wall 72 and side walls 73 extending upwardly therefrom. The liner 70 is received on a horizontal pivot pin 74 within the precompacting chamber 53. The liner 70 also has a horizontal actuating bar 76 which is contacted by the ram second portion 66 to pivot the liner 70. A door 78 may be opened to place material into the precompacting chamber 53. The door 78 may be opened only when the ram is in the neutral position shown in Figure 7 and must be in the closed position before the hydraulic cylinder 60 and piston 62 may be actuated to operate the ram 56. Accordingly, no web between the liner bottom wall 72 and the precompacting chamber bottom wall 80 is required since no material can enter into that space with the door 78 closed.

The embodiment of Figures 7-10 of the specification operates in a manner generally similar to that described in conjunction with the operation of the embodiment of Figures 1-5. As shown in Figure 7, the ram 56 is in a neutral position and the door 78 may be opened to place trash within the liner 70 of precompacting chamber 53. After the trash is so positioned, door 78 is closed and the ram 56 is actuated. Ram 56 then moves vertically downwardly to the position shown in Figure 8 where the second portion 66 of ram 56 precompacts the material within liner 70. At the same time, the first portion 64 of ram 56 enters into removable receptacle 52 which forms the main compacting and storage chamber through an opening 82 in the top wall of the receptacle 52. The ram first portion 64

thereby compacts material within receptacle 52 when receptacle 52 is sufficiently full of material that the ram performs the compacting action. After the compacting and precompacting stroke shown in Figure 8, the ram is raised vertically to the position shown in Figure 9 where the second portion 66 contacts the actuating bar 76 to pivot liner 70 above pivot 74 thereby dumping material from the liner 70 into the removable receptacle 52.

Referring now to Figures 11 through 14, there is shown a third embodiment of the present invention in which a large trash compactor 90 has a main compacting and storage chamber 92 with a compactor body 94 positioned at one end. A two part ram 95 is positioned within body 94. The first part 96 of ram 95 has a top wall 98, a bottom wall 100, side walls 102 and a rear wall 103 with a projection 103a extending upwardly therefrom and to each side for a purpose to be described. The second part 104 of two part ram 95 has a working face 106, a top wall 108, a bottom wall 110, and side walls 112. The two part ram is actuated by a hydraulic cylinder 120 fixed to the body 94 and a piston 122 fixed to the first part 96 of ram 95. A spring 124 surrounds the cylinder 120 and urges the rear wall 103 of the ram first part 96 away from the rear wall 114 of the ram second part 104. A door 126 is provided in the top of compactor body 94 to admit trash material to the compactor.

In operation, the ram 95 is initially in the neutral position shown in Figure 12. At that time, the door 126 is opened and material is introduced into the auxiliary precompacting chamber formed between the wall 127 of the main compacting and storage chamber 92 and the working face 106 of the second part 104 of ram 95. The precompacting chamber bottom wall is actually the top wall 98 of the ram first part 96. This top wall 98 of the ram first part 96 serves as the third portion of the ram 95 to prevent trash within the precompacting chamber from entering the main compacting and storage chamber 92 until the trash material is precompact-

ed. From the position shown in Figure 12, the ram 95 is moved to the left as viewed in Figure 13 so that the trash is precompact between the wall 127 and the working face 106 of the ram second part 104. At the same time, the ram first portion 96 enters into the main compacting and storage chamber 92 through the opening 128 in wall 127 to further compact material within the main compacting and storage chamber 92.

After the compacting stroke shown in Figure 13, the ram 95 is retracted to the position shown in Figure 14. In this position, the ram second part 104 is retracted to the position shown in Figure 12 and the ram first part 96 is retracted into the ram second part so that the material that has been

precompact on the previous stroke now falls in front of ram first part 96 from where it is moved through opening 128 into the main compacting and storage chamber 92 when the ram is returned to the position shown in Figure 12.

When the ram 95 is returned from the position shown in Figure 14 to the position shown in Figure 12, the spring 124 keeps the ram second part 104 back away from wall 127 of the main compacting and storage chamber 92 because it urges the ram second part rear wall 114 away from ram first part rear wall 103. Once the ram reaches the position shown in Figure 12, the projection 103a on rear wall 103 of ram first part 96 contacts the working face 106 of ram second part 104 thereby causing the two parts of the ram to move in unison to the position shown in Figure 13 upon further actuation of the cylinder 120 and piston 122.

A fourth embodiment of the present invention is shown in Figures 15 through 17. In this embodiment, a trash compactor 130 is designed for permanent installation in a large building which serves as a transfer station for material collected by refuse trucks to be compacted and loaded into large trucks for long distance hauling.

In this embodiment, the main compacting and storage chamber is the long distance hauling vehicle 132. The vehicle 132 is parked adjacent to the body 134 of the trash compactor 130. A ram 136 is actuated by a hydraulic cylinder 138 fixed to the transfer station building (not shown) and a hydraulic piston 140. The cylinder 138 and piston 140 reciprocate the ram 136 in a vertical direction. The ram 136 has a first portion 142 which forces the compacted material through passage 143 into the vehicle 132. A second portion 144 of ram 136 precompacts material by moving into close proximity with the sloping wall 145 within compactor 130. A third portion 146 of ram 136 prevents material within the precompacting chamber 148 formed above sloping wall 145 from entering into the main compacting and storage area within the vehicle 132. The auxiliary precompacting chamber 148 is fed by a chute 150.

In operation, the ram 136 is positioned initially in the neutral position shown in Figure 15. The trash material is then conveyed down chute 150 into auxiliary precompacting chamber 148 above the sloping wall 145. The ram 136 is then moved vertically downwardly by the cylinder 138 and piston 140 to the position shown in Figure 16 where the material is precompact within chamber 148 and the first portion 142 of ram 136 forces material through passage 143 and compacts it into the vehicle 132. It will be noted that because the vehicle 132 is immovably abutted against trash compactor body 134 the ram first portion 142 moves the material into vehicle 132 and compacts it within

vehicle 132 as vehicle 132 becomes filled even though ram first portion 142 never enters into the main compacting and storage chamber within vehicle 132.

According to the provisions of the patent statutes, I have explained the principle, preferred construction and mode of operation of my invention and have illustrated and described that I now consider to represent its best embodiments. However, it should be understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

Claims

1. A trash compactor (10) comprising a precompacting chamber (30), a main chamber (15) and a ram (16), the ram (16) being movable between an extended position, a retracted position, and a central position, and the ram (16) having a first portion (26) partially defining the precompacting chamber (30), a second portion (24) partially defining the main chamber (15), and a third portion (28) arranged to selectively prevent communication between the precompacting chamber (30) and the main chamber (15), the arrangement being such that in the extended position of the ram, the precompacting (30) and main (15) chambers have minimum volume and the third portion (28) of the ram serves to prevent communication between the precompacting chamber (30) and the main chamber (15), in the retracted position of the ram (16) the precompacting (30) and main (15) chambers have maximum volume and communication between the precompacting chamber (30) and the main chamber (15) is permitted, and in the central position the precompacting (30) and main (15) chambers have an intermediate volume and communication between the precompacting chamber (30) and the main chamber (15) is denied, characterised in that the precompacting chamber (30) has an entry door (38), and in that access to the precompacting chamber (30) from the outside is only permitted when communication between the precompacting chamber (30) and the main chamber (15) is prevented.
2. A trash compactor according to Claim 1, characterised in that the ram (16) reciprocates vertically and the precompacting chamber (30) has a pivoting liner (33) actuated by the ram (16) in its retracted position to dump precompacted material from the precompacting chamber (30) into the main chamber (15).
3. A trash compactor according to Claim 1 or Claim 2, characterised in that access to the precompacting chamber (30) from the outside is via a door (38), and the ram (16) is controlled such that the door (38) must be in the closed position before the ram (16) will move.
4. A trash compactor according to any preceding Claim, characterised in that the precompacting chamber (30) is arranged above the main chamber (15), and trash flows by gravity from the precompacting chamber (30) to the main chamber (15) when communication therebetween is permitted.
5. A trash compactor according to Claim 4, characterised in that the precompacting chamber (30) has a bottom wall (145) that is sufficiently sloped that precompacted material moves by gravity into the main chamber (132) when the ram (136) is in the retracted position.
6. A trash compactor according to Claim 5, characterised in that the ram (136) compacts material within the main chamber (132) without the ram (136) entering the main chamber (132).
7. A trash compactor according to any preceding Claim, characterised in that the movement of the ram (16) is linear.
8. A trash compactor according to Claim 7, characterised in that the ram (16) is moved by a hydraulically actuated cylinder (20) and piston (22) fixed to the body of the trash compactor (10) and to the ram (16).
9. A trash compactor according to any preceding Claim, characterised in that two precompacting chambers (30) are provided to precompact material for further compacting and storage in the main chamber (15).
10. A trash compactor according to any preceding Claim, characterised in that the main chamber (15) is a replaceable, removable unit (52) that may be removed from the compactor (10) when full and replaced by an empty unit (52).
11. A trash compactor according to Claim 2, characterised in that the pivoting liner (33) has a flexible web (44) connecting the liner bottom wall (32) to the body (46) of the trash compactor (10) to prevent material from entering below the liner bottom wall (32) when said liner (33) is pivoted upwardly.

12. A trash compactor according to any preceding Claim, characterised in that the ram (112) comprises two relatively movable parts (98, 108), a first part (98) constituting the first and third portions of the ram and a second part (108) comprising the second portion of the ram, the first part (98) of the ram (112) being retractable into the second part (108) of the ram (112) to afford communication between the main (92) and precompacting (106) chambers when the ram (112) is in its retracted position.
13. A trash compactor according to Claim 12, characterised in that the first (98) and second (108) parts of the ram (112) are urged apart by the force of a spring (124) interposed between first (98) and second (108) parts of the ram (112).
14. A trash compactor according to Claim 12 or Claim 13, characterised in that the first part (98) of the ram has a projection (103a) formed thereon to contact the second part (108) of the ram (112) when the first part (98) of the ram is moved towards its extended position to limit the relative separating movement of the first and second parts (98, 108) of the ram (112).
15. A trash compactor according to Claim 1, characterised in that the movement of the ram (16) is a pivotal movement.

Patentansprüche

1. Müllverdichter, der eine Vorverdichtungskammer (30), eine Hauptkammer (15) und eine Ramme (16) aufweist, die Ramme (16) zwischen einer ausgefahrenen Stellung, einer eingefahrenen Stellung und einer zentralen Stellung bewegbar ist und die Ramme (16) einen teilweise die Vorverdichtungskammer (30) definierenden ersten Teil (26) und einen die Hauptkammer (15) teilweise definierenden zweiten Teil (24) und einen dritten Teil (28) aufweist, der zur selektiven Verhinderung einer Verbindung zwischen der Vorverdichtungskammer (30) und der Hauptkammer (15) angeordnet ist, wobei die Anordnung so ausgebildet ist, daß in der ausgefahrenen Stellung der Ramme die Vorverdichtungs- (30) und die Hauptkammern (15) ein Mindestvolumen aufweisen und der dritte Teil (28) der Ramme dazu dient, eine Verbindung zwischen der Vorverdichtungskammer (30) und der Hauptkammer (15) zu verhindern, in der eingefahrenen Stellung der Ramme (16) die Vorverdichtungs- (30) und Hauptkammern (15) ein Maximalvolumen aufweisen und die Verbindung zwischen

der Vorverdichtungskammer (30) und der Hauptkammer (15) ermöglicht ist und in der zentralen Stellung die Vorverdichtungs- (30) und Hauptkammern (15) ein Zwischenvolumen aufweisen und die Verbindung zwischen der Vorverdichtungskammer (30) und der Hauptkammer (15) verschlossen ist, **dadurch gekennzeichnet**, daß die Vorverdichtungskammer (30) eine Eingangstüre (38) aufweist und der Zugang zur Vorverdichtungskammer (30) von außen nur möglich ist, wenn die Verbindung zwischen der Vorverdichtungskammer (30) und der Hauptkammer (15) verhindert ist.

2. Müllverdichter nach Anspruch 1, **dadurch gekennzeichnet**, daß die Ramme (16) vertikal hin- und herbewegbar ist und die Vorverdichtungskammer (30) einen durch die Ramme (16) in ihrer eingefahrenen Stellung betätigten schwenkbaren Container (30) aufweist um das vorverdichtete Material von der Vorverdichtungskammer (30) in die Hauptkammer (15) zu kippen.
3. Müllverdichter nach Anspruch 1 oder 2, **dadurch gekennzeichnet**, daß der Zugang zur Vorverdichtungskammer (30) von außen über eine Türe (38) erfolgt und die Ramme (16) so gesteuert ist, daß die Türe (38) sich in ihrer geschlossenen Lage befinden muß, bevor die Ramme (16) sich bewegt.
4. Müllverdichter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet**, daß die Vorverdichtungskammer (30) oberhalb der Hauptkammer (15) angeordnet ist und der Müll durch Schwerkraft von der Vorverdichtungskammer (30) zur Hauptkammer (15) fließt, wenn die Verbindung dazwischen ermöglicht ist.
5. Müllverdichter nach Anspruch 4, **dadurch gekennzeichnet**, daß die Vorverdichtungskammer (30) eine Bodenwand (145) aufweist, welche ausreichend geneigt ist, damit das vorverdichtete Material in Folge Schwerkraft in die Hauptkammer (132) sich bewegt, wenn die Ramme (136) sich in der eingefahrenen Stellung befindet.
6. Müllverdichter nach Anspruch 5, **dadurch gekennzeichnet**, daß die Ramme (136) das Material in der Hauptkammer (132) verdichtet, ohne daß die Ramme (136) in die Hauptkammer (132) eindringt.
7. Müllverdichter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet**, daß

die Bewegung der Ramme (16) linear ist.

8. Müllverdichter nach Anspruch 7, **dadurch gekennzeichnet**, daß die Ramme (16) durch einen hydraulisch betätigten Zylinder (20) und einen Kolben (22) bewegt wird, welche am Körper des Müllverdichters (10) und der Ramme (16) befestigt sind. 5
9. Müllverdichter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet**, daß zwei Vorverdichtungskammern (30) vorgesehen sind, um das Material vorzuverdichten für ein weiteres Verdichten und Speichern in der Hauptkammer (15). 10 15
10. Müllverdichter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet**, daß die Hauptkammer (15) eine ersetzbare, entfernbare Einheit (52) ist, welche, wenn gefüllt, vom Verdichter (10) entfernbar und durch eine leere Einheit (52) ersetzbar ist. 20
11. Müllverdichter nach Anspruch 2, **dadurch gekennzeichnet**, daß der schwenkbare Container (33) ein flexibles Gewebe (44) aufweist, welches die Containerbodenwand (32) mit dem Körper (46) des Müllverdichters (10) verbindet, um das Eindringen von Material unter die Containerbodenwand (32) zu verhindern, wenn der Container nach oben geschwenkt ist. 25 30
12. Müllverdichter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet**, daß die Ramme (112) zwei relativ zueinander bewegbare Teile (98, 108) aufweist, ein erster Teil (98) die ersten und dritten Teile der Ramme bilden und ein zweiter Teil (108) den zweiten Teil der Ramme bildet, der erste Teil (98) der Ramme (112) in den zweiten Teil (108) der Ramme (112) einziehbar ist, um eine Verbindung zwischen der Haupt- (92) und Vorverdichtungskammern (106) zu ermöglichen, wenn die Ramme (112) sich in ihrer eingefahrenen Stellung befindet. 35 40 45
13. Müllverdichter nach Anspruch 12, **dadurch gekennzeichnet**, daß die ersten (98) und zweiten (108) Teile der Ramme (112) durch die Kraft einer Feder (124) voneinander weggedrückt werden, welche zwischen dem ersten (98) und dem zweiten (108) Teil der Ramme (112) angeordnet ist. 50
14. Müllverdichter nach Anspruch 12 oder 13, **dadurch gekennzeichnet**, daß der erste Teil (98) der Ramme einen Vorsprung (103a) angeformt hat, zum Berühren des zweiten Teils

(108) der Ramme (112), wenn der erste Teil (98) der Ramme gegen seine ausgefahrene Stellung bewegt wird, um die relative Trennbewegung des ersten und zweiten Teil (98, 108) der Ramme (112) zu begrenzen.

15. Müllverdichter nach Anspruch 1, **dadurch gekennzeichnet**, daß die Bewegung der Ramme (16) eine Schwenkbewegung ist.

Revendications

1. Compacteur de déchets (10) comprenant une chambre de précompactage (30), une chambre principale (15) et un pilon (16), ledit pilon (16) étant mobile entre une position d'extension, une position rétractée et une position médiane, et ayant une première portion (26) définissant partiellement la chambre de précompactage (30), une seconde portion (24) définissant partiellement la chambre principale (15), et une troisième portion (28) réalisée pour pouvoir au besoin empêcher la communication entre la chambre de précompactage (30) et la chambre principale (15), cette réalisation étant telle que:
- lorsque le pilon est en position d'extension, les chambres de précompactage (30) et principale (15) présentent un volume minimum, la troisième portion (28) du pilon empêchant alors la communication entre lesdites chambres de précompactage (30) et principale (15);
 - lorsque le pilon (16) est en position rétractée, les chambres de précompactage (30) et principale (15) présentent un volume maximum, la communication entre elles étant alors permise;
 - et, lorsque le pilon (16) est en position médiane, les chambres de précompactage (30) et principale (15) présentent un volume intermédiaire, la communication entre lesdites chambres de précompactage (30) et principale (15) étant alors empêchée; compacteur de déchets caractérisé en ce que la chambre de précompactage (30) comporte une porte d'entrée (38), et en ce que l'accès à l'intérieur de la dite chambre (30) depuis l'extérieur est autorisé uniquement quand la communication entre la dite chambre de précompactage (30) et la chambre principale (15) est empêchée.
2. Compacteur de déchets selon la revendication 1, caractérisé en ce que le pilon (16) se meut verticalement, et en ce que la chambre de précompactage (30) comporte un sas (33) monté pivotant et actionné par le pilon (16) en posi-

- tion rétractée pour déverser le matériau précompacté de la chambre de précompactage (30) dans la chambre principale (15).
3. Compacteur de déchets selon la revendication 1 ou 2, caractérisé en ce que l'accès à la chambre de précompactage (30) depuis l'extérieur s'effectue par la porte d'entrée (38), et en ce que le pilon (16) est réglé de manière que la porte (38) doit être en position de fermeture avant que le pilon ne se meuve. 5 10
 4. Compacteur de déchets selon l'une quelconque des revendications précédentes, caractérisé en ce que la chambre de précompactage (30) est disposée au dessus de la chambre principale (15), et les déchets chutent par gravité de la chambre de précompactage (30) dans la chambre principale (15) quand la communication entre-elles est permise. 15 20
 5. Compacteur de déchets selon la revendication 4, caractérisé en ce que la chambre de précompactage (30) comporte un fond (145) suffisamment pentu pour que les matériaux précompactés passent par gravité dans la chambre principale (132) quand le pilon (136) est en position rétractée. 25
 6. Compacteur de déchets selon la revendication 5, caractérisé en ce que le pilon (136) compacte les matériaux dans la chambre principale (132) sans que ledit pilon (136) ne pénètre dans ladite chambre principale (132). 30 35
 7. Compacteur de déchets selon l'une quelconque des revendications précédentes, caractérisé en ce que le mouvement du pilon (13) est linéaire. 40
 8. Compacteur de déchets selon la revendication 7, caractérisé en ce que le pilon (16) est actionné par piston (22) et cylindres hydrauliques (20) fixés audit pilon (16) et corps du compacteur (10). 45
 9. Compacteur de déchets selon l'une quelconque des revendications précédentes, caractérisé en ce que deux chambres de précompactage (30) sont prévues pour compacter le matériau en vue d'un compactage et stockage ultérieurs dans la chambre principale (15). 50
 10. Compacteur de déchets selon l'une quelconque des revendications précédentes, caractérisé en ce que la chambre principale (15) est formée d'une unité démontable et remplaçable (52) qui peut être démontée du compacteur (10) 55
- une fois remplie et remplacée par une unité (52) vide.
11. Compacteur de déchets selon la revendication 2, caractérisé en ce que le sas pivotant (33) une membrane flexible (44) reliant le fond (32) du sas au corps (46) du compacteur (10) pour éviter que des matériaux ne pénètrent par dessous ledit fond (32) quand le sas (33) est en position pivotée vers le haut.
 12. Compacteur de déchets selon l'une quelconque des revendications précédentes, caractérisé en ce que le pilon (112) comprend deux parties (98, 108) en mouvement relatif, une première partie (98) constituant la première et troisième portions du pilon, et une seconde partie (108) comprenant la deuxième portion du pilon, ladite première partie (98) étant rétractable dans ladite seconde partie (108) afin de permettre la communication entre la chambre principale (92) et la chambre de précompactage (106) quand le pilon (112) est en position rétractée.
 13. Compacteur de déchets selon la revendication 12, caractérisé en ce que la première partie (98) et la seconde partie (108) du pilon (112) sont repoussées l'une de l'autre par la force d'un ressort (124) interposé entre-elles.
 14. Compacteur de déchets selon la revendication 12 ou 13, caractérisé en ce que la première partie (98) du pilon comporte une portée (103a) formant butée de contact contre la seconde partie (108) du pilon (112), quand ladite première partie (98) du pilon se meut vers sa position d'extension, afin de limiter le mouvement relatif de séparation desdites parties (98, 108) du pilon entre-elles.
 15. Compacteur de déchets selon la revendication 1, caractérisé en ce que le mouvement du pilon (16) est un mouvement pivotant.

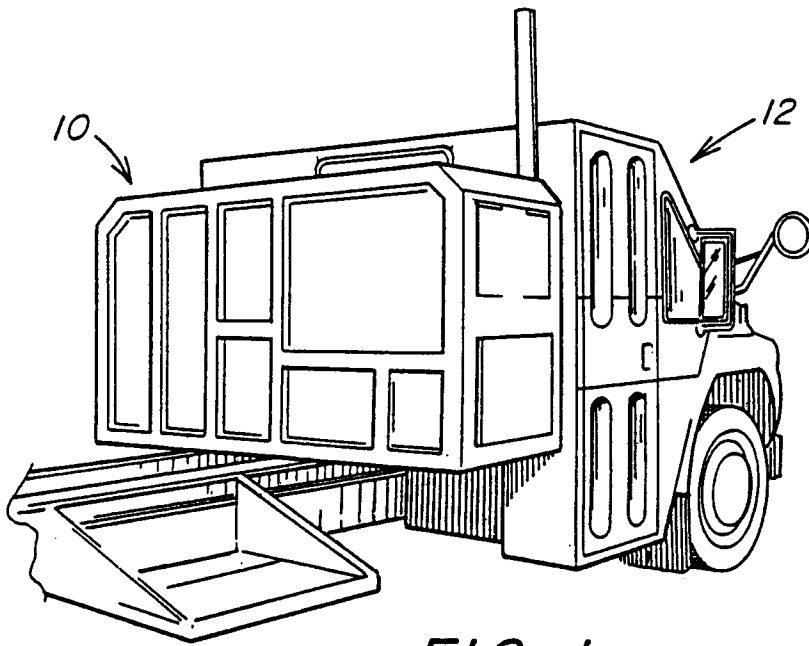


FIG. 1

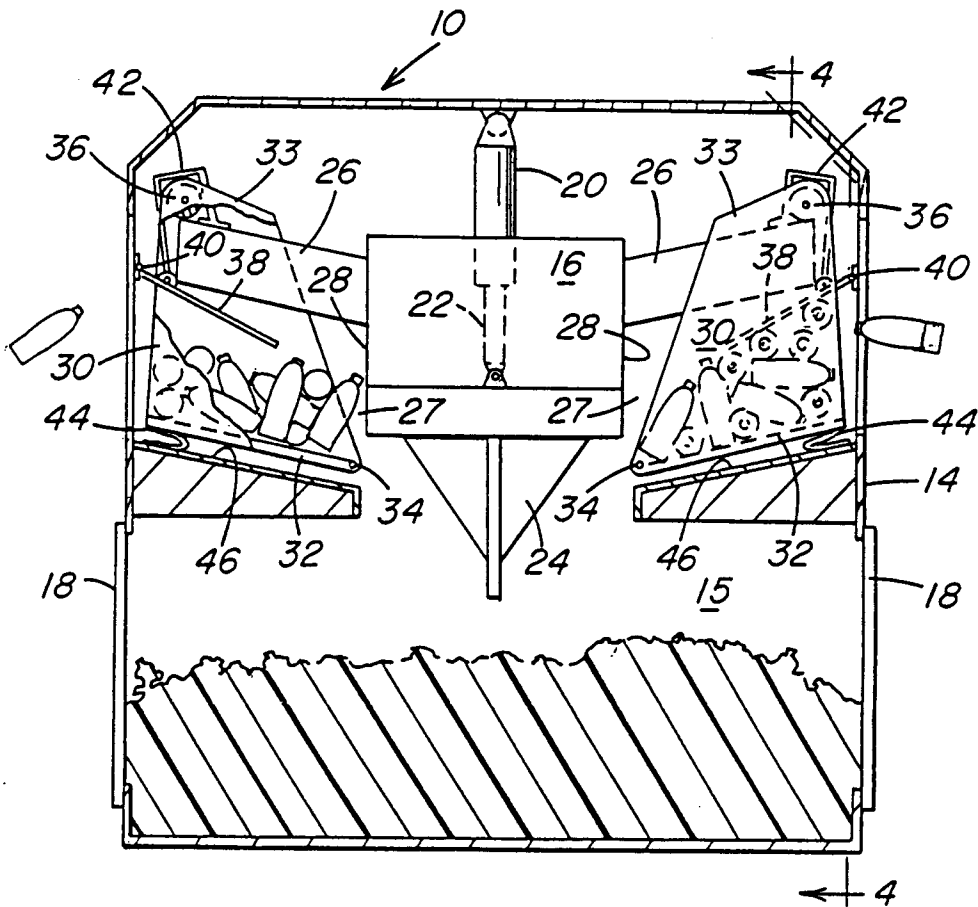


FIG. 2

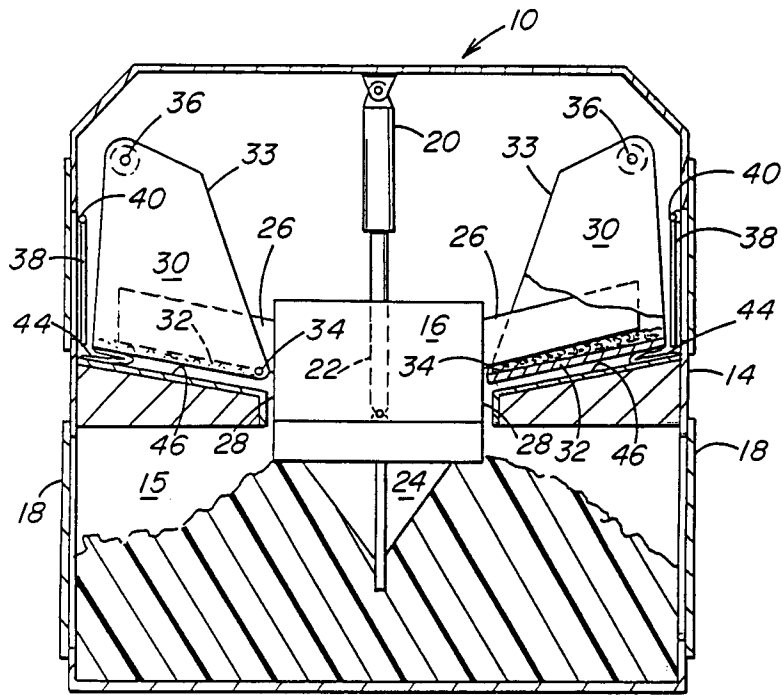


FIG. 3

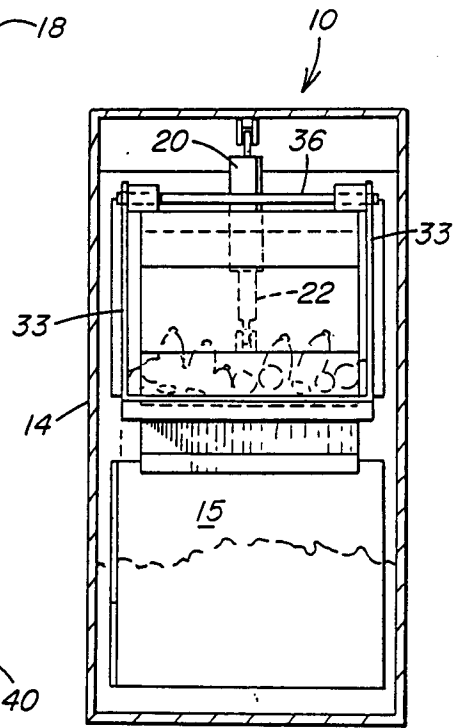


FIG. 4

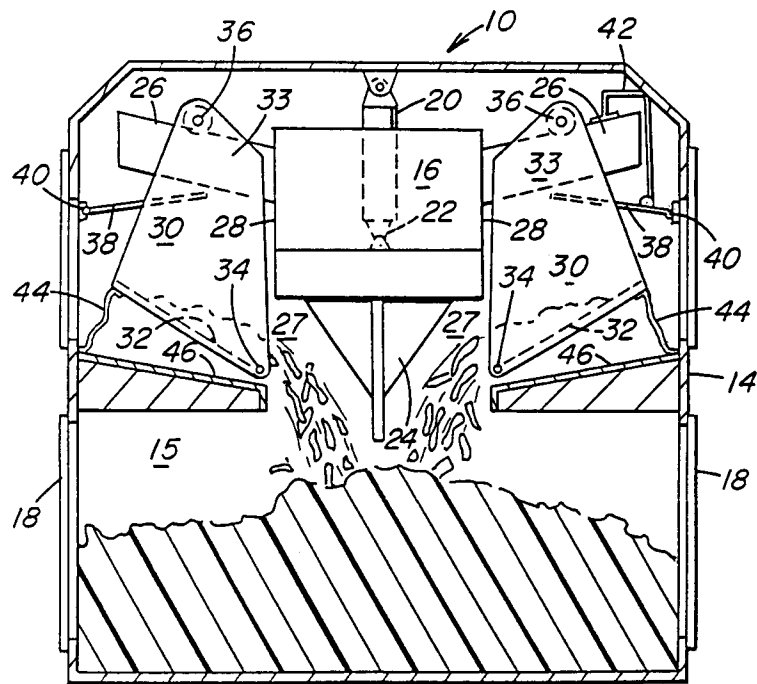
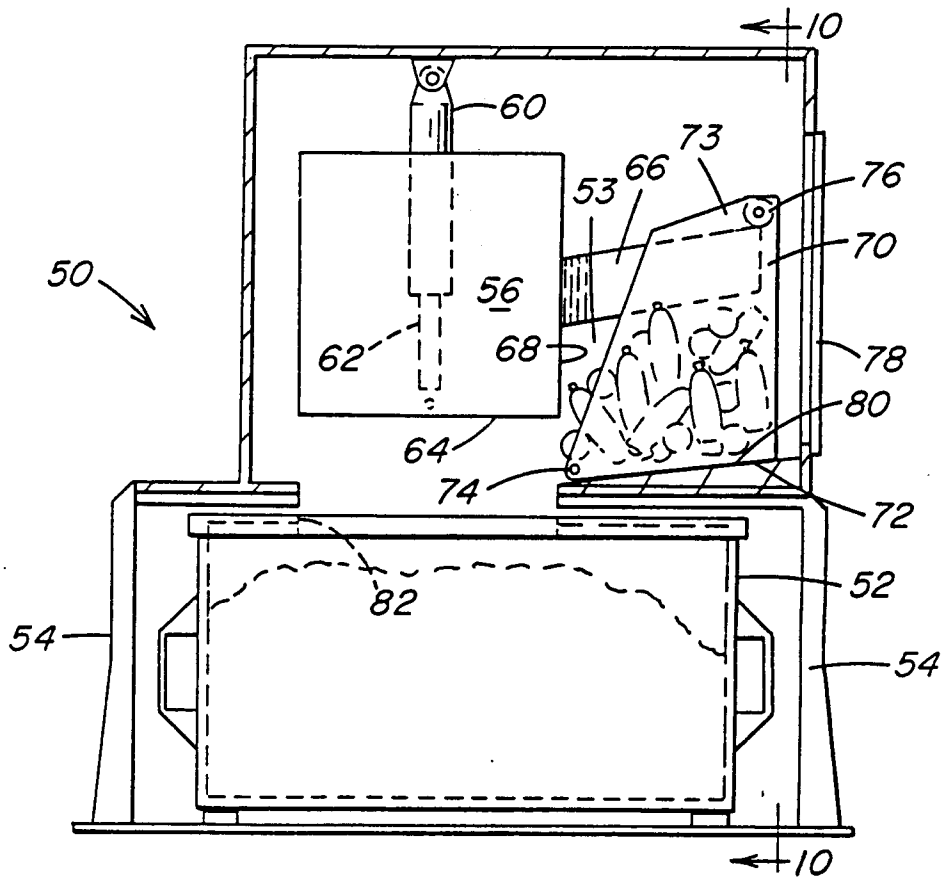
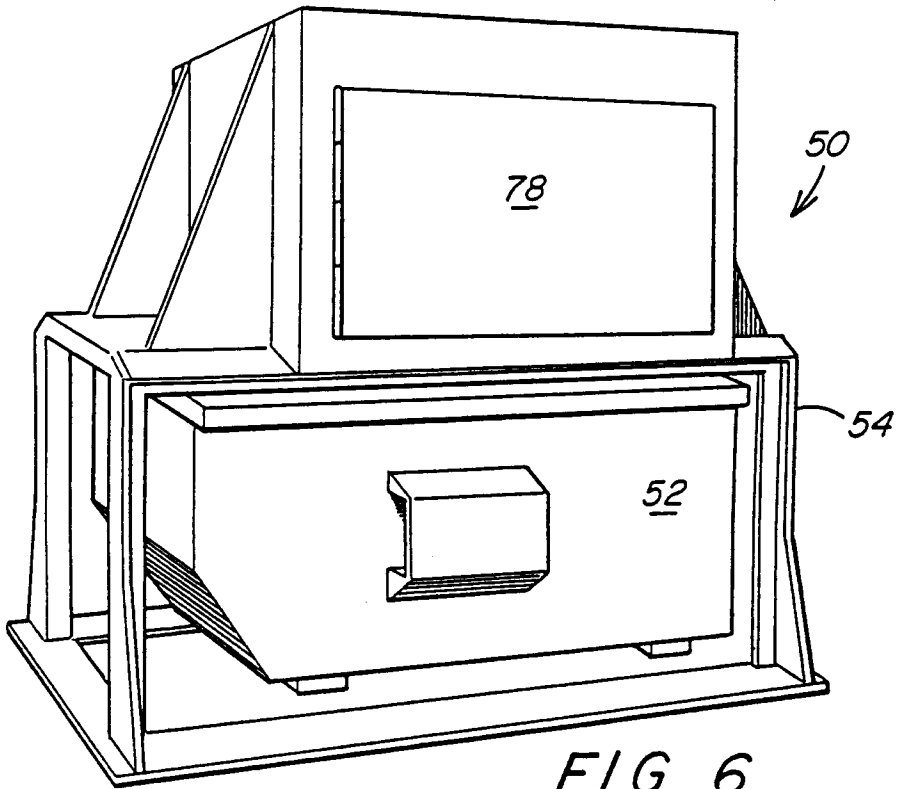


FIG. 5



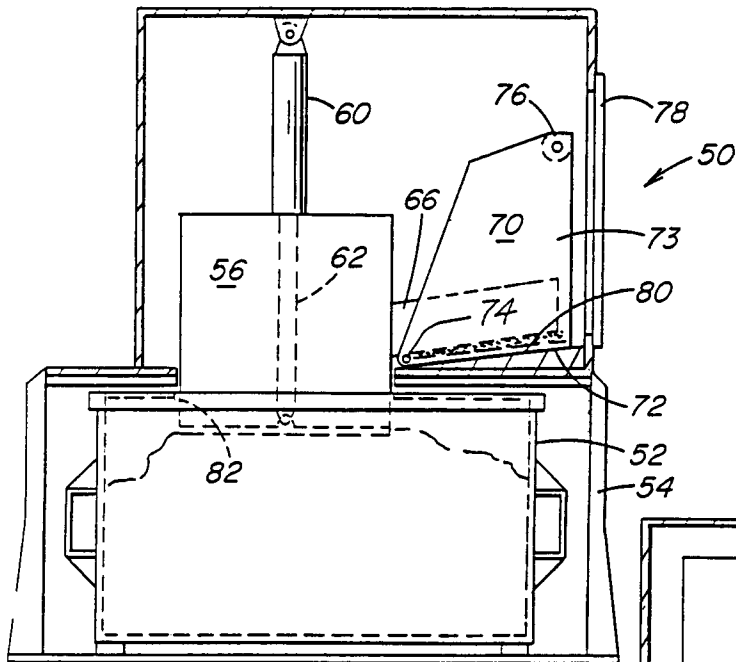


FIG. 8

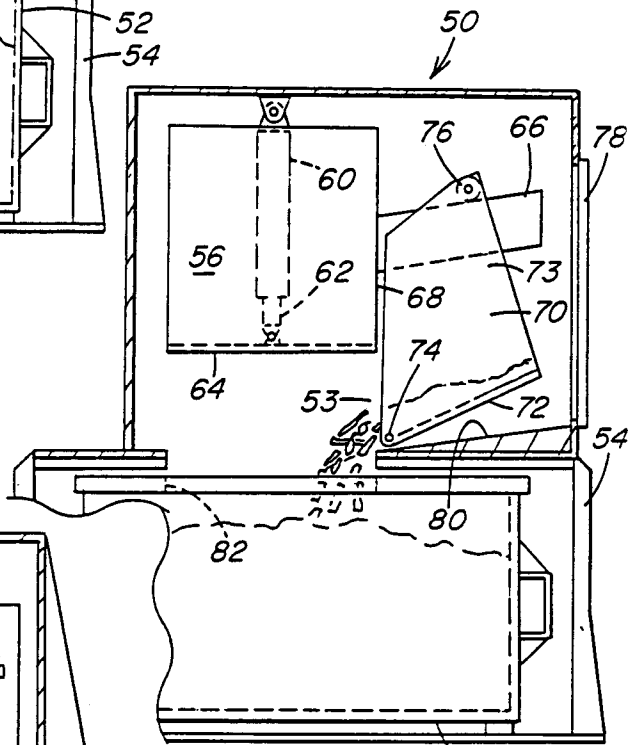


FIG. 9

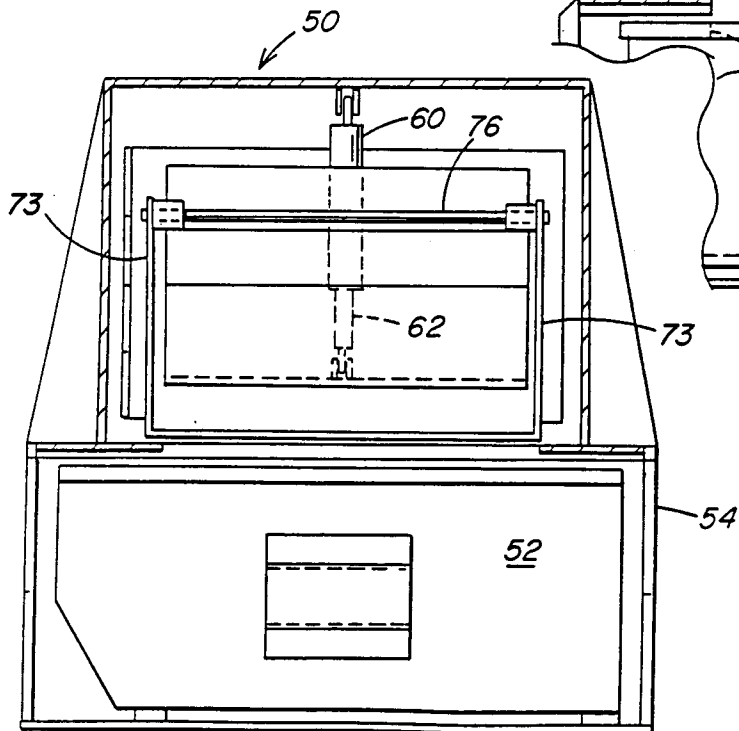
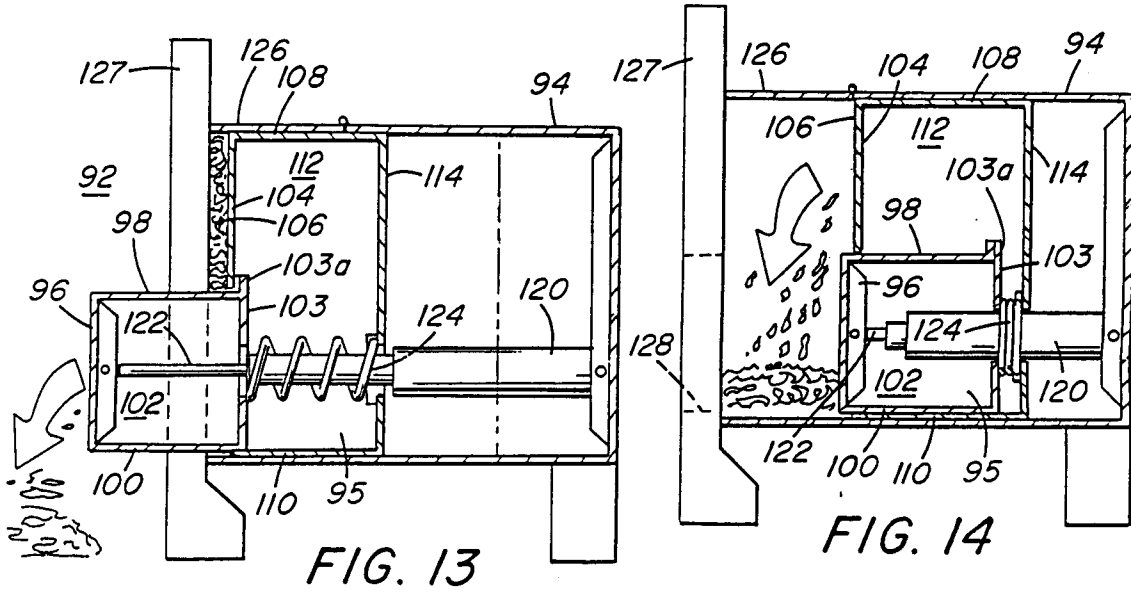
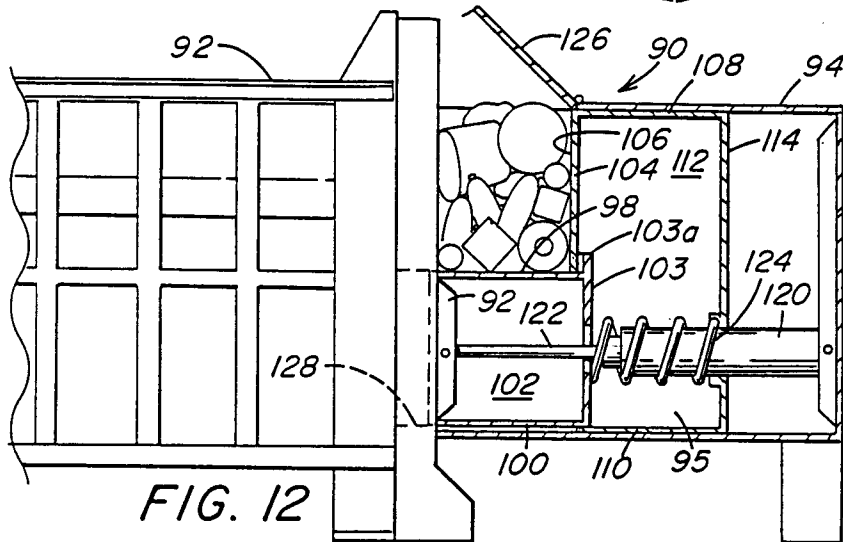
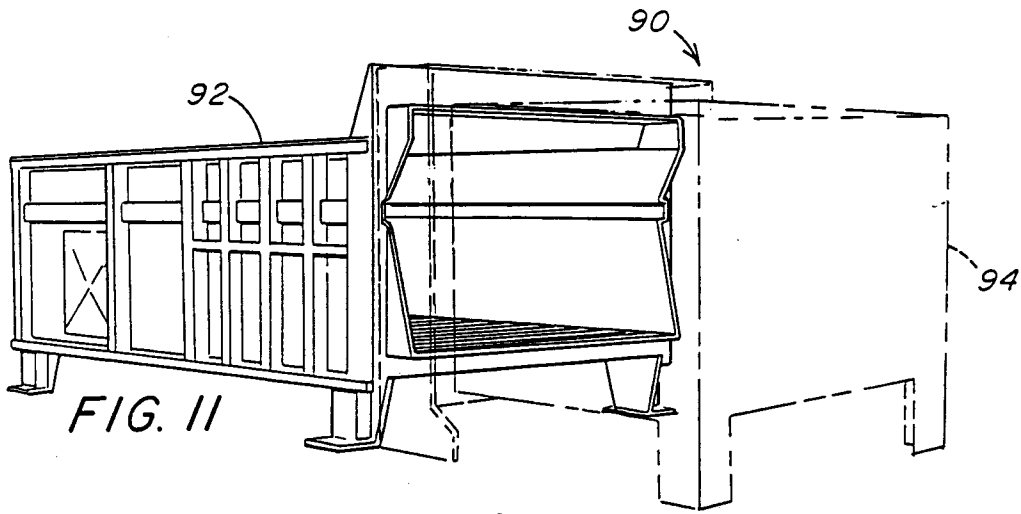
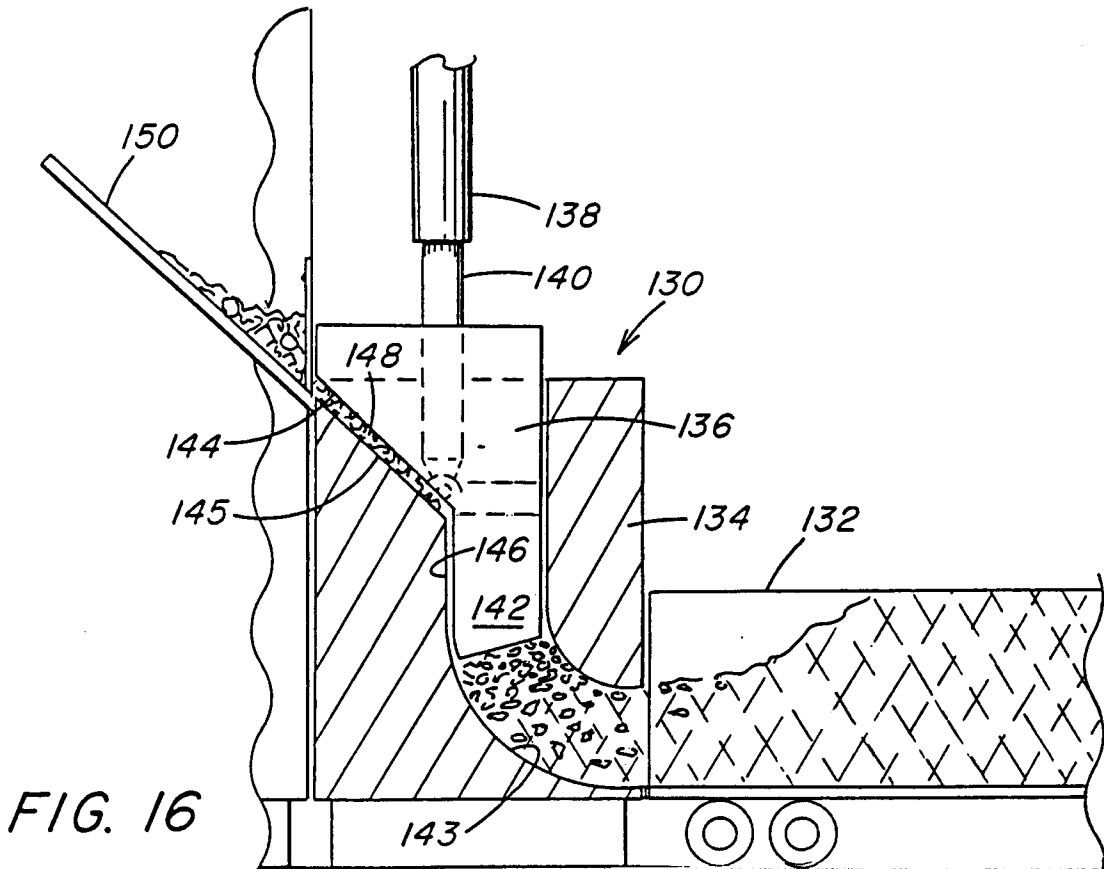
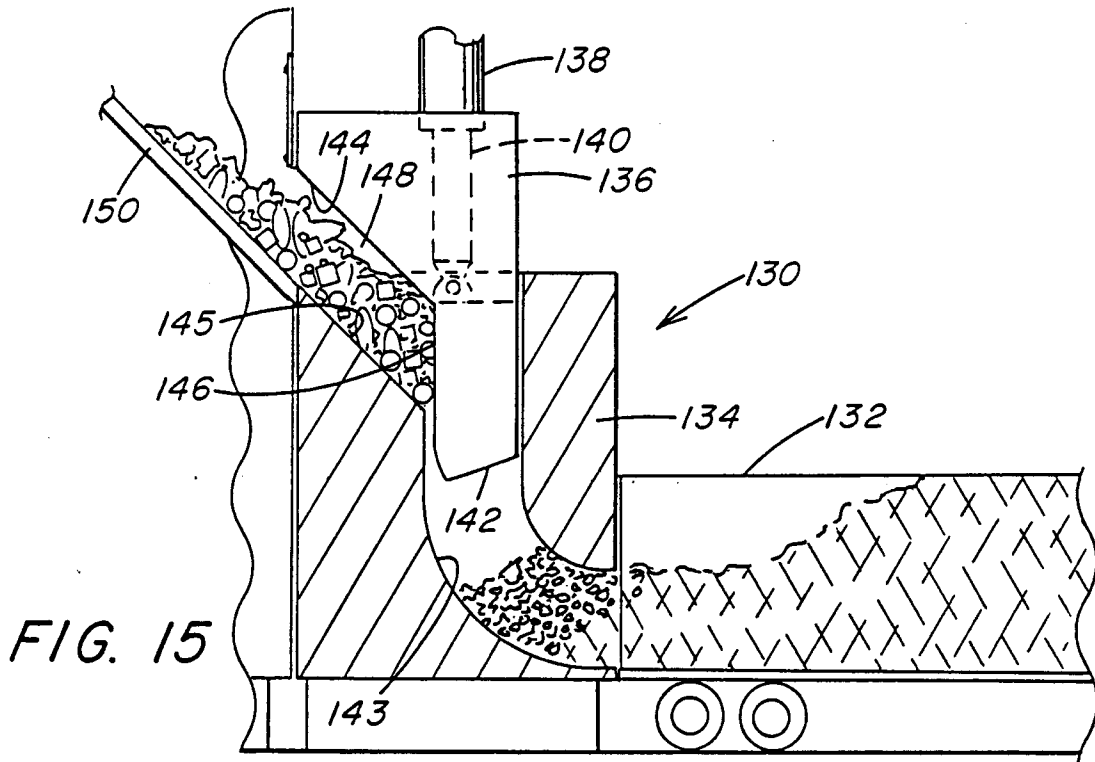


FIG 10





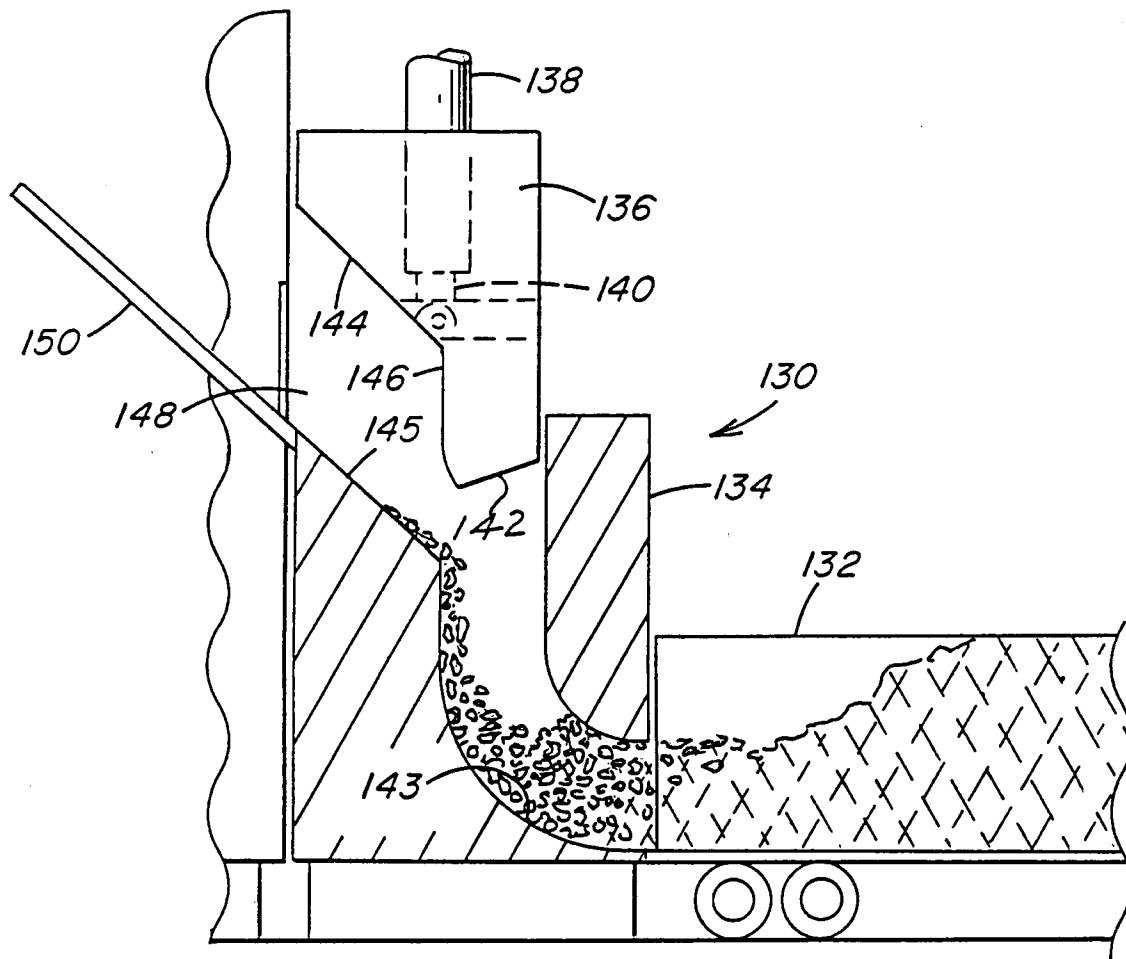


FIG. 17